Red Hat Linux RHCSA Exam Prep

IT 293 504 / CRN# 56116
Spring '21
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Flexible Contact Hours
MWTTh 10:00 AM – 2:00 PM
or ARR

COURSE DESCRIPTION

Students will learn Linux basics and the skills necessary to pass the RHCSA test. See outcomes below

Be sure to create an account at https://redhat.com

EMAIL
Be sure to check your contact information in Banner and keep it updated. UNM email as our official form of course communication. When communicating with your instructor always include class name in the subject header

Student Learning Outcomes/Course Objectives
https://www.redhat.com/en/services/training/ex200-red-hat-certified-system-administrator-rhcsa-exam?section=Objectives
:
Understand and use essential tools
- Access a shell prompt and issue commands with correct syntax
- Use input-output redirection (>, >>, |, 2>, etc.)
- Use grep and regular expressions to analyze text
- Access remote systems using SSH
- Log in and switch users in multiuser targets
- Archive, compress, unpack, and uncompress files using tar, star, gzip, and bzip2
- Create and edit text files
- Create, delete, copy, and move files and directories
- Create hard and soft links
- List, set, and change standard ugo/rwx permissions
- Locate, read, and use system documentation including man, info, and files in /usr/share/doc

Student Learning Outcomes/Course Objectives (cont….)

Create simple shell scripts
- Conditionally execute code (use of: if, test, [], etc.)
- Use Looping constructs (for, etc.) to process file, command line input
- Process script inputs ($1, $2, etc.)
- Processing output of shell commands within a script
- Processing shell command exit codes

Operate running systems
- Boot, reboot, and shut down a system normally
- Boot systems into different targets manually
- Interrupt the boot process in order to gain access to a system
- Identify CPU/memory intensive processes and kill processes
- Adjust process scheduling
- Manage tuning profiles
- Locate and interpret system log files and journals
- Preserve system journals
- Start, stop, and check the status of network services
- Securely transfer files between systems

Configure local storage
- List, create, delete partitions on MBR and GPT disks
- Create and remove physical volumes
- Assign physical volumes to volume groups
- Create and delete logical volumes
- Configure systems to mount file systems at boot by universally unique ID (UUID) or label
- Add new partitions and logical volumes, and swap to a system non-destructively

Create and configure file systems
- Create, mount, unmount, and use vfat, ext4, and xfs file systems
- Mount and unmount network file systems using NFS
- Extend existing logical volumes
- Create and configure set-GID directories for collaboration
- Configure disk compression
- Manage layered storage
- Diagnose and correct file permission problems

Deploy, configure, and maintain systems
- Schedule tasks using at and cron
- Start and stop services and configure services to start automatically at boot
- Configure systems to boot into a specific target automatically
- Configure time service clients
- Install and update software packages from Red Hat Network, a remote repository, or from the local file system
- Work with package module streams
- Modify the system bootloader

Student Learning Outcomes/Course Objectives (cont….)

Manage basic networking
- Configure IPv4 and IPv6 addresses
- Configure hostname resolution
- Configure network services to start automatically at boot

Student Learning Outcomes/Course Objectives (cont….)

- Restrict network access using firewall-cmd/firewall

Manage users and groups
- Create, delete, and modify local user accounts
- Change passwords and adjust password aging for local user accounts
- Create, delete, and modify local groups and group memberships
- Configure superuser access

Manage security
- Configure firewall settings using firewall-cmd/firewalld
- Create and use file access control lists
- Configure key-based authentication for SSH
- Set enforcing and permissive modes for SELinux
- List and identify SELinux file and process context
- Restore default file contexts
- Use boolean settings to modify system SELinux settings
- Diagnose and address routine SELinux policy violations

Manage containers
- Find and retrieve container images from a remote registry
- Inspect container images
- Perform container management using commands such as podman and skopeo
- Perform basic container management such as running, starting, stopping, and listing running containers
- Run a service inside a container
- Configure a container to start automatically as a systemd service
- Attach persistent storage to a containe

Prerequisites and Co-requisites
IT 125

TECHNICAL SKILLS

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

- Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at Online Student Documentation). Also, UNM-Valencia provides a Blackboard Learn Jumpstart self-learning module to give you practice with the most commonly used tools in UNM Learn. Ask your instructor if you do

not see the UNM-Valencia Blackboard Learn Jumstart in your list of classes in UNM Learn.

- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to access a website or online resource)
- Create, download, update, save and upload MS Word documents
- Use the in-course web conferencing tool (Collaborate Web Conferencing software in UNM Learn) or use Zoom or other web conferencing tool
- Download and install an application or plug in – required for participating in web conferencing sessions

TECHNICAL REQUIREMENTS

Computer
- A high-speed Internet connection is highly recommended.
- Supported browsers include: [Detailed Supported Browsers and Operating Systems](#)
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can *greatly* affect performance.
- For the best experience when using the Kaltura Media Tools inside UNM Learn, be sure to use a [supported browser](#) on a desktop.
- Microsoft Office products are available free for all UNM students (more information on the [UNM IT Software Distribution and Downloads page](#))
- Please update your contact information in Loboweb: [MyUNM Login](#). When you log into MyUNM, Enter LoboWeb. Click on the Personal Information link to make sure your contact information is up to date.

Web Conferencing
Web conferencing will be used in this course during the following times and dates:
For the online sessions, you will need:
- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
- *You should also dress as you would when attending an in-person class, even if you do not turn on your video camera.*

Technical Support
- For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the "Create a Tech Support Ticket" link in your course.
- For UNM-Valencia IT Support: (505)925-8911
- For UNM Web Conference Technical Help: (505) 277-0857
- Any Cisco Academy problems **CONTACT ME**

TEXTBOOK AND SUPPLEMENTAL MATERIALS

Required Textbooks:
Lab work is focus of class but supplementary materials are suggested
.
Suggested Supplementary Materials:

RHCSA/RHCE Red Hat Linux Certification Seventh Edition; Yang and Orsaria; McGraw Hill; ISBN# 978-0-07-184196-2

You must register at:
https://www.gilmore.ca/RedHat/RegisterUser.aspx?bf608901182c999b927a415e72ab0526
to have access to Red Hat Academy curriculum books. There is a free HTML version. I'll let you know where it is when I find it.

COURSEWORK AND PARTICIPATION

Instructor Response Time
I routinely check the course for postings or emails, Monday through Friday between 7:00 and 10:00 AM. You can anticipate a 24 to 48 hour response from me. If you MUST contact me, please text, but don't forget I sleep too.

Procedures for Completing Coursework

- *Once I enable the Cisco Academy module tests, you have 1 week to complete. If you want to retake a test, notify me and I'll enable it again.*
- *Packet Tracer labs must be submitted by email*
- *If you have difficulty with any of the module tests or Packet Tracer **BE SURE** to notify me immediately*

Course Schedule
There will be one to two recorded lectures per week. Each lecture will have a phrase (ex. It's hot). Who knows where it will appear. To get credit for the lecture you must email me the phrase. The phrase could be anywhere in the lecture.

Expectations for Participation

- *time required (9-12 hrs per week)*
- *students are expected to learn how to navigate in Learn*
- *students are expected to keep abreast of course announcements*
- *students are expected to use the Learn course email as opposed to a personal email address*
- *students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation*
- *students are expected to address technical problems immediately*
- *students are expected to observe course netiquette at all times*

Netiquette

- *Netiquette document*

NOTES TO STUDENTS ABOUT PARTICIPATION IN A COURSE USING UNM LEARN:

Tracking Course Activity

UNM Learn and Cisco Academy automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty

Grading Scale

Lecture Attendance	10%	A 90 +
Lab practice	40%	B 80 - 89
Lab tests	20%	C 70 - 79
Practice Final	10%	D 60 - 69
Final	20%	F < 60
Total	100%	

UNM POLICIES

Equal Opportunity and Non-Discrimination

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg. 15). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual

violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the [Office of Equal Opportunity](#).
[Read more about campus policy regarding sexual misconduct](#).

Copyright Issues
All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

[The UNM Copyright Guide](#) has additional helpful information on this topic.

Accessibility and Accommodations
The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact:
- [UNM-Valencia Student Services](#) if you are a Valencia campus student. The phone number is 505-925-8560
- [UNM Accessibility Resource Center](#) in 2021 Mesa Vista Hall if you are a main campus student. The phone number is 505-277-3506.

Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the offices above can assist you.

Academic Integrity
You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

Drop Policy:
[This section states your departmental policy for dropping students – edit or include your own statement.]

UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.

UNM RESOURCES

- **Learning Center https://valencia.unm.edu/campus-resources/the-learning-center/learning-center.html**

- **Form to request a tutoring Appointment https://esurvey.unm.edu/opinio/s?s=131505**

- **UNM Libraries – See Links on Class Learn Page**

- **Student support and Services – See Link "Student Support and Services" on Class Learn Page**

FOR MILITARY-CONNECTED STUDENTS

There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main campus at 505-277-3181, or by email at vrc@unm.edu. The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

SEMESTER DEADLINES

Spring 2021 – 16-week classes (deadlines will be different for first and second 8-week classes)

- Monday, January 18: First day of class and Dr. Martin Luther King Day
- Friday, January 29, by 5:00 PM: Last day to add a class or to change Sections
- Friday, February 5: Last day to drop without "W" grade and with 100% refund
  Tuition and fees for courses dropped after the above deadlines will Not be refundable
- Friday February 12: Last Day to Change Grading Options
- March 14 - 20: Spring Break
- Friday April 16: Last Day to Withdraw Without Student Services Permissions
- Friday May 7. Last Day to Withdraw With Student Services Permission
- Saturday May 8: Last day of instruction
- May 10 – 15: Finals Week

COURSE OUTLINE references https://contenthub.netacad.com/itn on the Academy site (*Please note that this course outline is subject to change. If changes occur, you will be notified*)

Week 1 / January 18   **Setup**

- Red Hat and Gilmore Global account setup
- Set up and running a Red Hat server in virtual space
- Linux architecture

Week 2 / January 25   **Fundamental Command-Line Skills**

Week 3 / February 1   **Fundamental Command-Line Skills**

Week 4 / February 8   **Linux Filesystem Administration**

Week 5 / February 15   **User Administration**

Week 6 / February 22   **RHCSA-Level System Administration Tasks**

Week 7 / March 1   **Security Primer with System Services and SELinux**

Week 8 / March 8   **Midterm**

To be continued …………..